manner that the fade-out range is freed from interfering side lobes.

3. Method according to one of the claims 1 or 2, **wherein**, except for the subcarriers contained in the fade-out range, only those subcarriers are zero charged that are located at the border of the fade-out range and, if need be, one or a few located directly outside the border of the fade-out range.

4. Method of suppressing narrow frequency bands in fade-out ranges during transmission of data by means of a multiple carrier method, e.g. DMT (Discrete Multitone) in which a predetermined broad frequency band is divided into a plurality of subchannels having subcarriers assigned thereto and in which the data to be transmitted are modulated in the transmitter with Inverse Discrete Fourier Transform (IDFT) and demodulated in the receiver with Discrete Fourier Transform (DFT), each subchannel being thus provided in the spectrum with a major lobe and several side lobes occurring in the region of nearby subcarriers, **wherein** the side lobes occurring in these frequency intermediate ranges be calculated, and from them the required charge of the subcarriers contained in the fade-out range and of the subcarriers adjacent thereto, for each frequency range extending between the subcarriers contained in at least one fade-out range and the subcarriers adjacent thereto respectively in order to achieve a compensation of the side lobes occurring in the fade-out range and that the subcarriers contained in the fade-out range and the subcarriers adjacent thereto be transmitted with the computed charge, the remaining subcarriers being left unaltered.

5. Transmission system for transmitting data by means of a multiple carrier method, e.g. DMT (Discrete Multitone) and for suppressing at least one narrow fade-out frequency range, with a transmission unit comprising an Inverse Discrete Fourier Transform unit (IDFT) by means of which a plurality of subchannels that subdivide the transmitting frequency range may be modulated with allocated subcarriers and with a receiving unit comprising a Discrete Fourier Transform unit (DFT), all the subcarriers contained in the fade-out range or adjacent to the fade-out range respectively may have a zero charge in the IDFT unit, more specifically for carrying out a method according to one of the claims

1, 2 or 3, **wherein** for each frequency range extending between the subcarriers contained in the fade-out range and the subcarriers adjacent thereto respectively, a processing unit (4) is provided for computing the side lobes occasioned by subchannels located outside the fade-out range, wherein the data to be transmitted can be entered at the input of the processing unit (4) and the calculated amplitude and phase of the added side lobes may be sampled at the output of the processing unit (4), that a compensation filter is connected to the output of each processing unit (4), its transmitting function being identical with or similar to the spectrum of the side lobes of the corresponding frequency intermediate range and that the output of the compensation filter (6) is connected to a first input of a subtraction member (3) and the output of the IDFT unit to a second input of the subtraction member (3) so that an interference-compensated transmitter signal may be sampled at the output of the subtraction member (3).

6. Transmission system for transmitting data by means of a multiple carrier method, e.g. DMT (Discrete Multitone) and for suppressing at least one narrow fade-out frequency range, with a transmission unit comprising an Inverse Discrete Fourier Transform unit (IDFT) by means of which a plurality of subchannels that subdivide the transmitting frequency range may be modulated with allocated subcarriers and with a receiving unit comprising a Discrete Fourier Transform unit (DFT), more specifically for carrying out a method according to claim 4, **wherein** a processing unit(4') is connected in front of the IDFT unit (1), said processing unit serving to compute side lobes occasioned by subchannels that are located outside the fade-out range, wherein the data to be transmitted may be entered at the input of the processing unit (4')and the subcarriers contained in the fade-out range and the subcarriers adjacent thereto which have a charge compensating for the side lobes may be sampled at the output of the processing unit (4') wherein said subcarriers may be stored by the IDFT-unit (1) together with the unaltered charges of the other subcarriers located outside the fade-out range.

7. Method of suppressing narrow frequency bands in fade-out ranges during transmission of data by means of a multiple carrier method, e.g. DMT (Discrete Multitone) in which a predetermined broad frequency band is divided into a plurality of subchannels having

subcarriers assigned thereto and in which the data to be transmitted is modulated in the transmitter with Inverse Discrete Fourier Transform (IDFT) and is demodulated in the receiver with Discrete Fourier Transform (DFT), each subchannel being thus provided in the spectrum with a major lobe and several side lobes occurring in the region of nearby subcarriers, **wherein** at least part of the subcarriers contained in at least one fade-out range and of the subcarriers adjacent thereto respectively are utilized as compensation sounds, the charge of which being calculated in such a way that the integral of the weighted and sent power density spectrum is minimized over the entire frequency range.

8. Method of suppressing narrow frequency bands in fade-out ranges during transmission of data by means of a multiple carrier method, e.g. DMT (Discrete Multitone) in which a predetermined broad frequency band is divided into a plurality of subchannels having subcarriers assigned thereto and in which the data to be transmitted is modulated in the transmitter with Inverse Discrete Fourier Transform (IDFT) and is demodulated in the receiver with Discrete Fourier Transform (DFT), each subchannel being thus provided in the spectrum with a major lobe and several side lobes occurring in the region of nearby subcarriers, **wherein** at least part of the subcarriers contained in at least one fade-out range and of the subcarriers adjacent thereto respectively are utilized as compensation sounds, the charge of which being calculated in such a way that the integral is minimized over the entire frequency range of the weighted, squared amplitude of the Fourier transformed of the sent data signal by way of a number of data blocks that may be predetermined.

9. Method according to claims 7 or 8, **wherein** computation takes already sent data into consideration.

10. Method according to one of the claims 7, 8 or 9, **wherein** either a Guard Interval or a cyclical prefix is transmitted between the data combined to blocks.